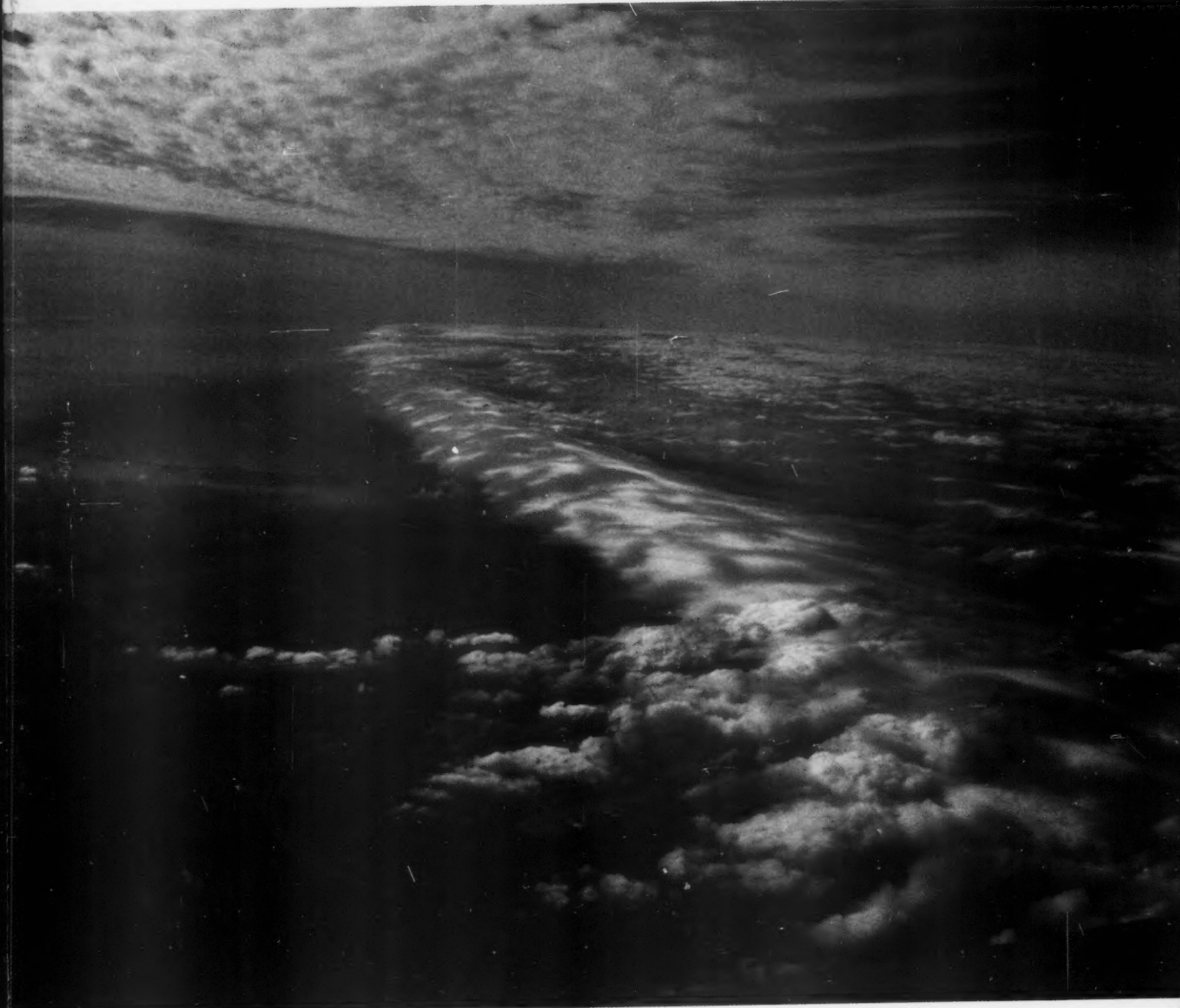


D 202.13:36/9

MARCH 1991

approach

The Naval Aviation Safety Review



Special Weather Issue

EDITORIAL

Everybody talks about the weather, but nobody does anything about it. Except for the staff at *Approach*. We hoard the best stories we get about ice, lightning, fog and rainstorms, then we send them out in our annual weather issue. We call it the "goe" issue.

Granted, it doesn't seem like the sexiest of our theme issues. Ejections and ACM sound much more thrilling. But don't be deceived — weather will surprise you, as the authors in this issue will testify. It will make you divert twice, then send in the thunderstorms and waterspouts 30 seconds after you finally land. It will make an SH-2F feel like a mixmaster. It will give you no visibility and treat you to a near midair while you are listening to a rookie controller who thinks you are VFR. It will bring you to landings that end with a resounding "Hallelujah!", followed by post-flight inspections that find every external light broken and dents on all leading edges. The articles in this issue tell all these yarns.

Weather will also teach you the answers to some important questions. What is the real meaning of "dissipating"? What is the difference between an official weather update and an unofficial one? What is the true value of a weather brief that is due to expire in six minutes? Should you trust what your eyeballs see through the canopy, or what the meteorologist back on the ship tells you? How long does it take to go from "cautiously workable" to a total whiteout in a Norwegian snowstorm? What do you say to your commanding officer when he's flying on your wing and you lead him right into a thunderstorm, where he gets hit by lightning?

As always, the pages of *Approach* are where you can learn the easy way. One author wrote, "I had a great deal more pleasure writing about the flight than I did experiencing it." We hope that goes double for the pleasure of reading about it.

Deek Nelson

FEATURES

- Thunderstorm Penetration:
Follow My Leader?** 2
By Lt. Bob Paulson

- Really Ballistic in the Goo** 4
By Capt. John S. Murphy, USMC

- Slippin' and A-Slidin'** 6
By Lt. R. E. Durrance

- Follow me, skipper. I'll get us
through!** 7
By Lt. Mike Gnozzio

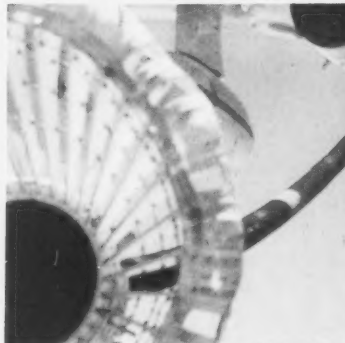
- Too Many Cooks Almost
Spoiled the Broth** 9
By Capt. T.F. Oltorik, USMC

- Well . . . It Wasn't a Dark and
Stormy Night When We
Launched** 12
By Lt. T.J. Roorda

- F-14A+Fog=Worms** 14
By Lt. Owen G. Godfrey

On the cover: The fog bank off the southern California coast can cause flight problems for aviators in the San Diego area. Photo by Jan C. Jacobs, Managing Editor of *The Hook*.

Approach (ISSN 0570-4979) contents should not be considered directive and may not be construed as incriminating under Art 31 of the Uniform Code of Military Justice. Views expressed in guest-written articles are not necessarily those of the Naval Safety Center. The Secretary of the Navy has determined that this publication is necessary in the transaction of business required by law. It is funded and printed in accordance with all Navy publishing and printing regulations and approval of the Navy Publications and Printing Policy Committee. Second-Class Postage Paid at Norfolk, Va., and additional mailing office. *Approach* is available for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. POSTMASTER: Send address changes to *Approach* Magazine, Naval Safety Center, NAS Norfolk, VA 23511-5796.



see page 2



see page 14



see page 22



see page 30

- "Center, We Can't Maintain
Altitude!"** 16
By LCdr. David Kriege

- Didn't they know . . . we were in
the fog?** 19
By Ens. Kieran S. Twomey

- Tales From a Mixmaster** 20
By Lt. Pat Rabin

- White, Whiter, Whiteout!** 22
By Capt. Daniel G. Purcell, USMC

- Another Night Adventure** 28
By LCdr. Rick Berg

- Painted Into a Corner:
A Nugget's Weather Lesson** 30
By Lt. Reed M. Potecha

- Wingin' in the Rain** 32
By LCdr. G.R. Sawyer

- Under the Weather and the
Hop Still Went to Hail!** IBC
By Lt. Paul Bunge

DEPARTMENTS

- Bravo Zulu** 24

RAdm. J.H. Finney, Commander, Naval Safety Center
Col. John P. Oppenhuizen, Deputy Commander
Capt. W.J. Mooberry, Chief of Staff
Capt. K.G. Craig, Director, Aviation Safety Programs
Cdr. John D. Reid, Head, Media and Educational Support
Derek Nelson, Editor-in-Chief
Peter Mersky, Acting Editor
John W. Williams, Acting Art Director

Approach is a monthly publication published by the Commander, Naval Safety Center. Address comments, contributions and questions about distribution and reprints to:

Commander, Naval Safety Center
NAS Norfolk, VA 23511-5796
Attention *Approach* - Code 71

Telephone: Commercial 804-444-7416; Autovon 564-7416

By Lt. Bob Paulson

Thunderstorm *Follow*



PH3 Doug Houser

Our flight was the culmination of an arduous workup cycle. It was a long-range

strike from the carrier to the target in southern Florida. The package consisted of four A-6s, two EA-6Bs, and two KA-6Ds for en route tanking. We had a thorough brief and the weather was workable, though bad enough to offer an extra challenge.

Our EA-6 was Dash 4 of the lead group. During the climb, we entered marginal VMC conditions. No thunderstorms, no dense cloud—no sweat. Dash 3 had trouble getting into the basket and decided to take a break while we tanked. We got our gas and cleared to the right. Dash 3 gave it another try.

Soon, the clouds thickened and the formation tightened up. Turbulence began causing new problems. The basket began oscillating from 20 feet above to 20 feet below Dash 3. I began to wonder who would say “uncle” first, but Mother Nature made the decision for us. The A-6 I was flying from suddenly disappeared as my windscreen became covered with heavy rime ice. I applied full power, took a cutaway, climbed and got on the radio. Unfortunately, the only thing coming from the radio was a loud squeal.

With seven other aircraft in our general area, I figured we could outclimb everyone except the other Prowler who should be somewhere behind us. As we began our max-rate climb, lightning hit us three times in rapid succession. We kept climbing but at 39,000 feet, we were still in the goo, with no radio and trying not to stall.



LCdr. Art LeGare

approach/march 1991

n Penetration: w My Leader?

As we flew out of the storm approximately 20 miles later, the radios came to life and we rendezvoused on our wingman who checked us over. Everything seemed normal but we decided to go back to the ship and not press our luck. The storm and the ship had found each other but we recovered safely.

We found that the storm had damaged our nose radome, "football" radome and ram-air intake. Also, the lightning had welded our port speedbrake shut.

We learned several important lessons about weather flying. The KA-6 does not have radar, so he can't see embedded thunderstorms. Thunderstorms and icing were not forecast and we had shut down our radars behind the tanker. We could have prevented most of our problems if we had asked another radar-equipped aircraft to paint the clouds for us.

I also learned how important briefing lost-sight is. The tendency in the fleet is to rely on the radio for coordination. Plan and brief the specifics because the weather may screw up your radio just when you need it.

Although our wingman checked us over, he didn't see the damaged radomes. If we had continued the mission and ingressed at high speed, the weakened radomes might have imploded and FODed our engines. As it turned out, a little fiberglass fixed the problem.



lightning hit us three times in rapid succession.

As the situation developed, I was afraid to say anything. After all, the skipper was in my right seat and I was flying on the deputy's wing. We would be fine, right? Wrong! They were probably uncomfortable, too, and my decision to finally voice my concerns may have tipped the scales in favor of common sense: ◀

Lt. Paulson is a first-tour EA-6B pilot with VAQ-140.



PH1 Ronald Beno

Really Ballistic in the Goo

By Capt. John S. Murphy, USMC

4

I was fresh out of primary with 20 hours in the T-2, scheduled for a low-level navigation hop. The only concern was the weather. The forecast called for a 3,000-foot ceiling and seven miles visibility, right at the minimums for this flight. My instructor and I decided to launch and fly to the beginning of the route. The tops were 6,000-7,000 feet, certainly not a problem.

We taxied out and made our runups. The takeoff was normal and I accelerated to 250 KIAS in a climb. Approach gave me a right turn after leaving the ATA. I came inside the cockpit (okay, I admit it: my head was in the cockpit the whole time) and rolled into a 30-degree right bank. Just as I began the turn, approach called to turn right to intercept the departure radial. I set the gyro at 30 degrees and scanned the TACAN to see when I would have to roll out.

Suddenly, my instructor in the back yelled, "I've got it!" I thought he had seen traffic but, as we entered the goo, I threw that thought away. He immediately rolled to a 90-degree AOB. I couldn't understand what he was doing, but I didn't say anything.

I looked outside to see where we were. I could barely see the sun on the right side. It suddenly occurred to me that the sun should be on our left side since we were in a right turn after takeoff. The instructor had just made an unintentional aileron roll in the clouds! The aircraft departed and quickly entered a 6,000-fpm dive.

The weightlessness lasted for maybe 10 seconds but it felt longer. Suddenly, the aircraft moved back to 1 g, and the sun disappeared. I reached down for the ejection handle. My instructor said nothing.

We came out of the clouds, 60 degrees nose-down, with 60 degrees angle-of-bank. The IP leveled the wings and began a 7.5-g recovery. We leveled off at about 1,000 feet. He finally spoke.

"What the hell happened?"

"I'm not sure," I replied. "I was in a 30-degree bank and you took the aircraft and whipped in into a 90-degree bank."

"I was writing something on my kneeboard," he said, "and looked up to see the gyro passing 70 degrees, so I took control."

At this time, approach called us to ask



We came out of the clouds, 60 degrees nose-down, with 60 degrees angle-of-bank. . .

why we were at 1,000 feet, heading 270 degrees from where we were supposed to be. We declared an emergency, dumped fuel and made an uneventful recovery.

We griped the gyro because the IP felt that the front gyro had hung up at 30 degrees. Maintenance checked it but couldn't find anything wrong. We decided not to take another aircraft since it was Friday and we both wanted to live through the weekend.

At the club, we discussed what had happened. My instructor still felt that the front gyro had hesitated, momentarily

giving me wrong information. He also felt that he might not have been getting enough instrument time and admitted that he could probably use a warmup simulator occasionally.

I think he got vertigo as we entered the clouds, which wasn't unusual. I had just completed an extensive instrument syllabus and my scan was good. As I entered the clouds, I was on the gyro and felt everything was OK—until my instructor took control.

The point isn't so much who was at fault as that we nearly killed ourselves. ◀

Capt. Murphy flies AV-8Bs with VMA-214.



I forgot to ask for a runway braking-action report.

Slippin' and A Shakin'

By Lt. R.E. Durrance

Time was running out. Our squadron was preparing to deploy in the Navy's oldest, smallest, and least stable carrier. Bad weather and traffic congestion at NAF Far East conspired to decimate our FCLP plan. Weather for our trip down was forecast to be scattered layers with a few isolated showers. The visibility was six miles in a typical summer haze.

After a one-hour flight to the MCAS, we checked in with approach, who handed us off to the tower and the controlling LSO. Following a few minutes in the FCLP pattern, visibility quickly deteriorated. The unfamiliar right-hand pattern didn't help.



John Flynn

We made several trips around the pattern then a full-stop landing before heading for the fuel pits. When we returned to the field for our next period, the weather was clearing. We got a weather brief, filed our return flight plan, briefed and headed for the aircraft. Homeplate was forecast to be marginal VFR because of broken cloud layers and scattered rainshowers.

At the end of the second period, we landed to get some more fuel. We were racing the clock since the NAF closed at 2200. As we waited our turn in the pits, we called for our clearance. Base Ops kindly phoned home and got us a PPR to arrive 15 to 20 minutes late. I also gave weather a call for the current conditions and latest forecast. Good headwork, huh?

Unfortunately, the forecaster was indisposed and the observer wasn't qualified to update my brief. He did tell me that, based on his observation of the data, it seemed that there was little change from my earlier (and still valid) brief. The answer wasn't quite what I wanted but I was proud of myself for trying to cover all the bases.

The weather at our alternate was similar to that at home. At worst, we had enough fuel to come back to the MCAS, which was supposed to remain VFR. We got our fuel and were soon winging our way home. I figured we'd be no more than 20 minutes late.

The first indication that the weather forecast might not be completely accurate came when we couldn't find a VFR layer at our cruising altitude. We did have a tailwind, however, and were making good time. Our second indication came when we switched to approach and heard our other aircraft check in following their missed approaches. Weather at home was at minimums and our alternate a few miles away to the north was closed. As we got vectors for a PAR approach, I calculated how much fuel we'd need to get back to the MCAS after we shot our approach. We weren't fat but we could make it.

I was ecstatic when, at a few feet above minimums, we saw the runway. My brain was saturated thinking about approach procedures, fuel and rain-removal. I forgot to ask for a runway braking-action report. I had heard that our sister squadron's plane had landed with no apparent difficulties. We touched down and used normal aerodynamic braking after visually confirming that the flaperon pop-ups were extended. When the nose fell through, the pilot applied the brakes.

A few seconds later the right mainmount's tire blew. The pilot struggled to keep the plane on the runway and get it stopped. He dropped the hook, hoping to catch the midfield gear but was too late. The pilot did a good job keeping the Prowler on the runway and we stopped a few feet right of centerline with two blown main gear tires.

The damage was relatively minor. We did, however, create extra work for our maintenance troops and the crash crew, not to mention a few anxious moments for ourselves.

Lt. Durrance is an EA-6B ECMO with VAQ-136.

approach/March 1991

Follow me, skipper.



I'll get us through!

By Lt. Mike Gnozzio

Lt. T. R. Mixon

"Was that lightning flash as close as it looked?"

That was about all my pilot could say as he concentrated on controlling the aircraft while not losing our wingman as we wove our way through the thunderstorm.

"Hey, Doc," I said, "I think the skipper just took a direct hit and he doesn't look happy."

Yes, that's right. I led my CO into a thunderstorm and he took a lightning strike. After eight years and 2,000 hours in the A-6, how did I let myself get into this situation? We bounced around for another 30 seconds then finally

popped out the back side of the cell. The remainder of the flight was quiet and clear of clouds. As we neared our destination, I was afraid to face the skipper whom I had just tried to electrocute.

After we landed, I walked over to his aircraft and found him looking at its tail in disbelief. A two-by-six-foot section of the left side of the vertical stab was severely bubbled and blackened. I didn't know what to say, so I tried a humorous approach.

"Hey, Skipper, if you weren't flying so loose out there, the lightning probably never would have hit you." I immediately knew that was the wrong thing to say as he gave me the same look I saw when the lightning hit him.

I did a little tap dance, cleared my throat and picked my next words more carefully.

"Sorry, Skipper, are you OK?"

It was then that I realized that not only was his plane scarred but that he and his BN had taken the voltage as well. The CO felt the electrical surge enter his left hand, travel up his arm (actually fluttering his flight suit as it moved), through his shoulders and exit down his right arm and hand through the control stick. His BN had also received a good jolt through his right hand which was clenched around the canopy bow handle.

The A-6 was repainted and the aircrew got a clean bill of health from medical, ending the day with a good sea story. But, back to my original question: How did I get into this mess? For the answer let's go back to the beginning of the flight. For starters I wasn't expecting any problems. I had flown up and down that I-5 highway dozens of times. Rarely had I seen any significant weather, and when I did, I could easily circumnavigate it.

The DD-175-1? Yes, I looked at it during the brief, but who ever looks that closely at any-

thing other than the destination weather? The field was forecast to be clear with unlimited visibility. The temperature was hovering around 100 degrees. Coming from the Seattle rain festival (October through May), I couldn't wait to find some sun. Heading south, approaching Reno, I could see the thunder cells building in the midday sun. Just as briefed, they were centered right on the jet route. I took a quick look into the radar and decided to weave through

the cells instead of the more conservative and prudent option of vectoring west, around them.

All went well until I found myself funneling into a situation with no way out except through that last cell. Just as I was reassuring my pilot that it was a small cell, the turbulence hit us and the lightning flashed all around us.

Since hindsight is 20/20, I can say that vectoring around the cells would have been the better decision. But the worst decision happened on deck, before the flight. I considered the fly-off as routine and did not really read the NATOPS thoroughly. The thunderstorms were not a surprise. They were right where the forecaster said they would be.

I learned to respect thunderstorms. They can be a severe hazard to aircraft—as if I didn't know that already. If you allow a hop to become routine, you can, and will, get hurt. ◀

Lt. Gnozzio is an A-6 BN with VA-155.



I found myself funneling into a situation with no way out except through that last cell.

Too Many Cooks Almost Spoiled the Broth

By Capt. T.F. Oltorik, USMC

We had just completed the F/A-18 FRS syllabus. Most of us were CAT II students and would be returning to our original units with new aircraft. My squadron in Hawaii was getting its first Lot 11 F/A-18Cs. Most of the Hornets were delivered from NAVPRO to MCAS West Coast where they would accumulate in twos or fours and TRANSPAC to their final destination.

My flight lead and I flew two of the new arrivals home in early October. What a way to finish up six months of TAD, bringing back a couple of shiny, new F/A-18s for the squadron.

We were both former Phantom drivers with 700 hours in the F-4 each, and about 100 hours in the F/A-18. We felt confident that we could fly the ferry mission. The only hurdle would be the KC-135 tanker. The T&R syllabus did not include KC-135 tanking but our pre-qual practice had gone well.

The weather back home was not supposed to be a problem until three hours after our arrival and the current prediction was the standard "clear and a million."

The tanking portion of our flight went fine, but things began to get colorful after we separated from the tanker 200 nm from our destination. We could see that the weather was deteriorating sooner than anticipated. We asked the tanker (which landed at a different air-

field) to check on destination weather 250 nm out but he was unable to get it. No matter. The forecast was for VFR. Maybe the tanker driver was thinking the same and somehow, that little request didn't seem that important.

As we flew toward the terminal area and started our en route descent, we found ourselves in solid IMC with moderate to severe turbulence and driving rain. We used the No. 2 UHF—which we normally used for the squadron base frequency—for interflight comm. Center and MCAS Approach on No. 1 UHF were of little help in evaluating the weather.

The MCAS ATIS was also inaccurately reporting marginal conditions that were above PAR minimums. As usual, the reliable back-door weather check with the base gave us the most useful information. As our current situation unfolded, I envisioned the weather forecaster before launch briefing exactly what we had wanted to hear: "Clear and a million."

Now I felt like I could strangle him for giving us a bogus forecast. Things were really getting complicated. The clouds were ominous and the turbulence was so strong that we were having difficulty typing data such as frequency changes and waypoints into the Up-Front Control.

It was becoming almost impossible to fly a safe formation and

the intense rain completely obscured my windscreen. I was sure that the engines would ingest so much water that they would flame out. Our problems were compounded by comm jamming with simultaneous ATC and ODO transmissions on both radios.

When we were 50 miles out, it was obvious that the situation wouldn't improve. The ODO advised us to divert since the field was completely socked in with torrential rain and standing water on the single, 7,700-foot downhill runway. He told us our best bet was PMRF Howling Dunes, 100 nm away. It was the only field in the islands that was VFR. Unfortunately, higher headquarters was also monitoring the situation and without checking divert weather, told approach control that we were not to try a recovery but to go directly to the local divert base, NAS Midpac Point, 20 nm away.

In the meantime, we had decided to divert to Howling Dunes. To make matters worse, the ODO wasn't aware that higher headquarters and ATC had told us to go to a different field.

Just before we began our bingo profile, the severe turbulence and rain made it impossible to keep flying in formation. We had no choice but to split up before we could coordinate separate IFR clearances. Center handed us off overhead the island. We considered all factors. ATC wanted us to

go one place, and our squadron, another. Our fuel was getting low and we were not really sure of the weather at either divert. Center was very confused when we said we were heading for Howling Dunes instead of Midpac Point—the real



Harry Gann

names were easily confused in garbled radio transmissions—which was what the controller had received on his ATC strip.

We wasted precious minutes trying to convince him that we did not want to go to Midpac Point. We actually did consider making an approach to Midpac Point; that would have been disastrous. Once we descended out of altitude, we would have been stuck and a subsequent bingo to another island wouldn't have been possible for lack of fuel. The best alternative was to stay at our altitude and head for Howling Dunes, which was calling for VFR conditions. However, the risk there was that the PMRF didn't have PAR and the weather could actually be IFR. After descending, we were also committed to an immediate landing because of fuel or face ejecting.

Finally, our shortage of fuel forced us to deviate from normal ATC procedures. I told the center controller that we were going to Howling Dunes direct and if he did

not assist us immediately, he would be responsible for launching the SAR effort.

Mercifully, 50 miles from our divert, the clouds suddenly ended in beautiful, blue skies allowing us to continue VFR. With less than 2,000 pounds of fuel in both aircraft we began to make backup plans in case the 6,000-foot strip became fouled or we had an emergency. The only other suitable field on the

island was a civilian airport 30 nm east with no military facilities. Neither of us had experience landing on a short runway and we talked about taking a trap.

Certainly, one of us could trap without any problems, but the E-28 cycle time would undoubtedly be longer than the remaining Hornet would have fuel. We considered taking traps at opposite ends of the runway. Finally, after comparing fuel figures, my lead decided to go down first and rely on the antiskid to get the job done.

As we both now know, 6,000 feet is plenty for the Hornet. I was right behind him with an approach that resembled the high-altitude flameout recovery you see in some NATOPS manuals, complete with high and low keys. I was not going to take any chances with what little fuel I had left.

After we recovered safely, we started cleaning up our cockpits before we got out. The local civilians were glad to see us dismount with ti leaves in hand, a traditional



McDonnell Douglas Corp. via Timm

Hawaiian gift of good luck that the gunny in charge of our local maintenance det gave us before we left CONUS. I guess the leaves came in handy. There was no damage except for delamination of the rubber on the tips of all six external drop tanks. We spent our first night back in an obscure transient barracks talking about the TRANSPAC. We decided we had learned a few things.

We should have double- and triple-checked the weather, even if it was supposed to be "clear and a million." Most of us also have a habit of not taking all the fuel that SAC programs for TRANSPACs, especially when the tanker is a KC-135. Follow the fuel off-load program to the letter and don't short-change yourself.

As always, thoroughly brief and become familiar with the destination and planned diverts even if the weather may not be a factor. Field status can change and not allow a landing at your primary destination.

Know exactly what your divert criteria will be and where you will go. When the situation dictates and the criteria are met, follow through on your plan and divert. Don't vacillate, or wait for the deteriorating conditions to improve.

Micromanagement can kill in some cases. Our flight was a good example. Use established procedures and chains of command to pass the word. If higher authority had not intervened, this article

would not have been written.

Have all the facts before making critical decisions. In this case, ATC should have known exactly what the weather was at all our diverts and advised those people who were calling the shots.

Occasionally, ATC personnel must be prepared to deviate from established procedures and provide additional help for aviators in trouble. The center controller was definitely not on our side of the fence. As pilots, remember that "communicate" is last on our standard priorities list of "aviate, navigate and communicate."

One last thing, when possible, always carry ti leaves when you fly! ◀

Capt. Olitorik flies F/A-18s with VMFA-235.

approach/march 1991



Peter B. Mersky

Well... It Wasn't a Dark and Stormy Night When We Launched

12

By Lt. T.J. Roorda

While we decided whether to launch, we could see the stars over the field. The air was humid, and although the forecasters had called for thunderstorms all day, none had developed near the base. Now that the sun had gone down, the weather-guessers knew the convective activity in the distance was dissipating. I liked the word "dissipating." I wanted to fly and get that TraCom "X".

So, we launched. At 2135, we climbed into a warm, moonless June night and headed toward a rendezvous with our lead. Lightning flashed far away, silhouetting the buildups in the foreground, but we could still see the stars. We joined and flew through the standard night formation hop in our TA-4Js.

Thirty minutes into the flight, as we had nearly completed our area work, the atmosphere got eerie. In the darkness, decreasing visibility made it harder to see the lead. Wisps of gray suddenly swirled by like ghosts. We couldn't see the stars and it felt like we were in a dark room with the walls, floors and ceiling beginning to move in.

There was an encompassing haze and our lead asked approach control about the conditions at the NAS, only 23 miles away. Approach told us that the clouds were at 3,000 feet, and scattered; the visibility was seven miles. We were comforted as we thought, just a little farther, just a little lower, and we'll be out of this stuff.

Flying in close parade formation, our rotating anti-collision lights lit up the sky in flashes of red and pink. I got vertigo. At one point, I knew we had to be 70 degrees, nose up, and inverted. The attitude indicator told me we were straight and level.

Then the lightning got close, with electric-yellow and white-hot random flashes that blinded us. Turbulence shook our airplanes. The lead's port wingtip became an orange dot jostling in the deep gray haze. Then the light disappeared.

I took the controls and called, "Lost sight," as I cut away. Suddenly, off to the right, miracle of miracles, I saw the lead not 30 yards away with clear, bright lights. (We were in the night version of a sucker hole in the

clouds.) Quickly, I took a cut back in to join as we hurtled into the blackness. About 10 yards from him, closing fast, the lead vanished. I pushed the stick to avoid a midair and I heard myself say calmly, "Lost sight, again." My voice was the only part of me that was calm. It probably took two to three seconds to believe what my eyes were telling me. The AI showed us at 160 degrees AOB and 30 degrees nose-low: inverted in a nose dive. We had lost sight of the lead for the second time at 8,000 feet. The altimeter bottomed out at 4,500 feet. At this point, an intelligent man might have realized that the forecasters were wrong and headed for home. But I was a jaygee obsessed with getting the "X" and I pressed on.

Approach gave me vectors to my lead: "Five miles at 11 o'clock, 3,000 feet." We were still in the clouds at 3,000 so I asked for a lower altitude. I spotted him. It was hazy that close to the ground but I saw the red-orange glow of his wingtip light in a left turn.

I wanted to make it quick so I started an IP night rendezvous. Holding the lead perfectly still on my canopy, I knew we'd be aboard in no time. As we got closer, for some unknown reason, I checked the altimeter. It showed 1,200 feet MSL. The VSI showed us sinking comfortably at 1,000 fpm. I levelled off quickly and asked lead for his altitude.

"Three thousand," he replied.

I had been joining on an orange light of a factory on the ground! My student and I had been sure that the light had been moving across the sky.

We finally joined on the lead. At this point, Approach said, "We've got heavy stuff popping up between you and the field." His tone made it sound as if the radar echoes of the clouds were expanding like popcorn jumping out of its popper. His voice also conveyed something else: he had

known nothing about the thunderstorm we had just encountered.

I separated from my lead (I'd get the "X" some other night) and made a single-plane PAR to the field. I also paid close attention to my student's throttle movements on final. As we got on the ball, about 200 feet, the ball started rising quickly. (We had a sudden right quartering tailwind). My student pulled power to get a centered ball.

Our Pratt & Whitney P-6B began unwinding to the point of no return.

"Don't do that," I said as I pushed the throttle forward. "Just use the ball as a reference on a weird night like this." It was all I could muster for an explanation at the time.

We landed, and as we walked from the jet to the hangar, the SAR helo started up. It wasn't a drill. A TA-4J had crashed on short final.

The investigation revealed that low-level wind-shear from a rapidly formed thunderstorm had been a major factor in the crash. Obviously, "dissipating" was not a word that could be applied that night. Night temperatures gave the convective air the arena it needed to explode into a powerful storm.

Looking back, I saw that my obsession with getting that "X" almost killed me. At takeoff, I couldn't have known how bad things were going to get. When it got bad, I ignored the warning signs.

Lt. Roorda is an F/A-18 pilot with VFA-25.



We were supposed to provide radar targets and data-link-systems checks for the ship. The warning area had been clobbered all day with low ceilings and layers up to 30,000 feet, all thanks to an occluded front. By late afternoon, the front had moved well out to sea, leaving behind a few scattered clouds. A quick check of the weather vision confirmed the clearing skies and improving conditions that we saw from our ready room windows.

We launched on time, switched to strike and began drilling max-conserve circles around the boat. We ranged from 40 to 100 miles away from the coast at altitudes between 10,000 and 20,000 feet. During the two hours of systems checks, I monitored the fuel quantity to compare the actual consumption with the max-conserve fuel flow I had set on the LCD fuel-flow gauge. The F-14A(Plus) is notorious for burning

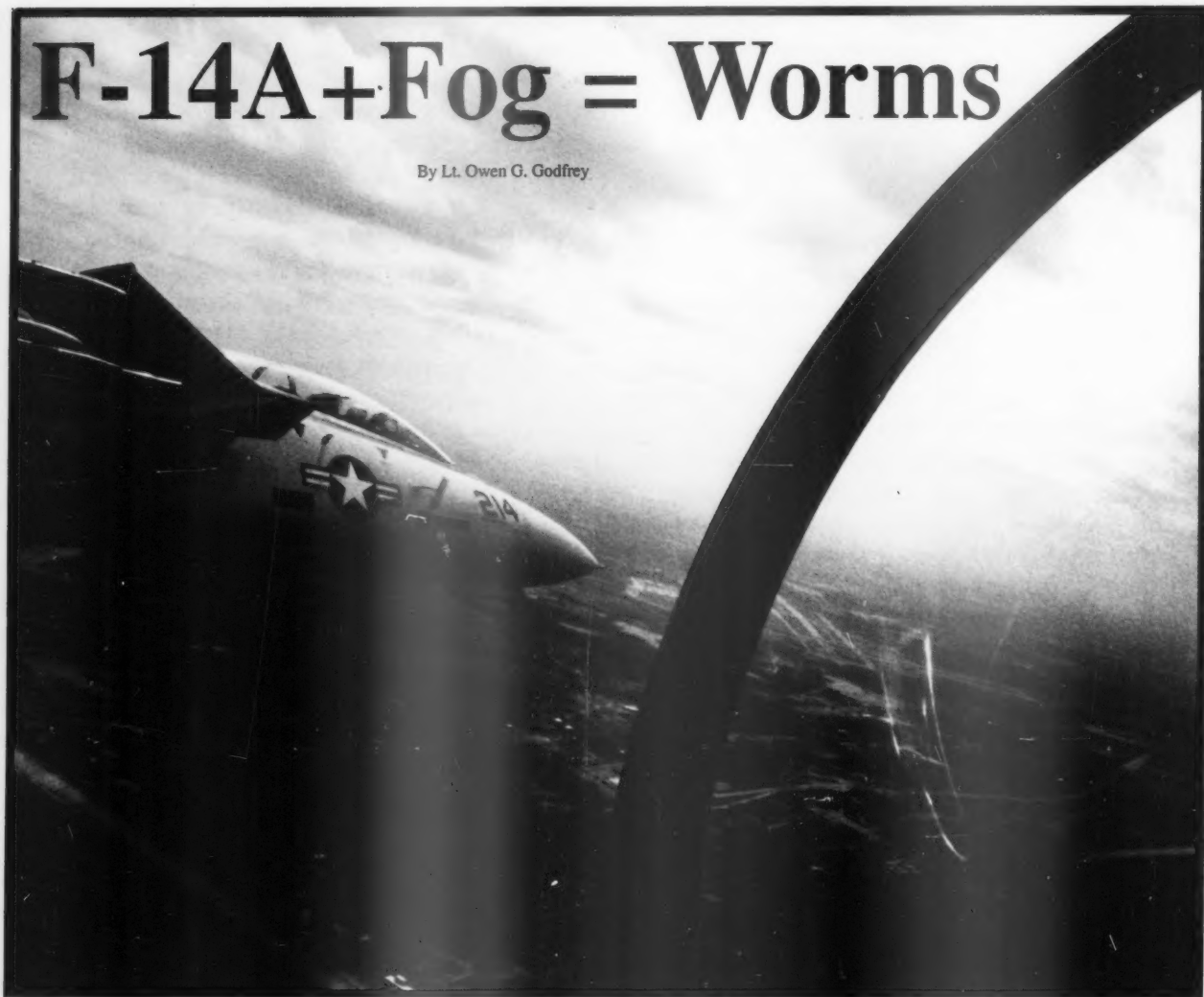
more per hour than what the gauge shows. According to my calculations, we would have 5,000 pounds remaining at 2100. Since we could see the field from 50 miles, we had no qualms about sticking around until the end of our time block.

Our final vector positioned us 100 miles east of the field with a fuel state of 5,000 pounds. We called approach and started a max-range descent from 20,000 feet. By the time we had leveled off at 1,500 feet, we were feet dry, about 20 miles from the field. We were vectored to an ACLS Mode 2 to runway 5R. As we dirtied up, my RIO noticed what he described as "all those interesting patches of fog on the ground." We could still see the field as we set up on final. The field's ACLS went down right after lockon and the controller told us to make a visual approach.

At 1,000 feet and 2.5 miles, we started flying in

F-14A+Fog = Worms

By Lt. Owen G. Godfrey





and out of a very thin layer. The extended centerline lights were visible throughout the approach but we still couldn't see the lens at one mile. We leveled off at 300 feet until we picked up a high ball at about three-quarters of a mile.

We were cleared for a touch-and-go, after which we switched to the tower's frequency for clearance downwind.

The tower cleared us to a right downwind because of FCLPs on 5L. Abeam the field, we noticed that the runway's extended centerline lights and the approach end were getting harder to see. Resorting to FCLP mentality, I flew the standard numbers. During the approach turn I could make out the extended centerline lights and, occasionally, portions of the threshold along with the lens. As I rolled onto final, all the visual cues disappeared and I realized that we were being swallowed up by a fog bank racing in from the southwest.

Instinctively, I leveled the aircraft with stick, but not enough power. I transitioned to an IFR scan and saw 200 feet on the altimeter, along with a 700-fpm descent and 18 units on the AOA gauge. I added power to climb out as I picked up the lens with a red ball. I told my RIO that I was going to land long and that I had the runway in sight. We

touched down and rolled out to a safe stop.

As we taxied back to our line, we told the tower that 5R was IFR. Then we watched the fog bank roll in.

The FCLP birds were now making full-stop landings as the fog rolled 4,000 feet further down the runway, to the approach end of 5L. In a few minutes, the field was completely fogged in, down to zero-zero. My fuel gauge indicated 3.2 and the past events started to dawn on me. We missed having our flight turn into a can of worms by a very small margin, definitely a case of being lucky rather than good.

As I discovered the next day, weather had predicted possible fog down to zero-zero. In my confidence that the weather was going to improve all night, my attention had wandered

during that part of the brief.

If we had not landed when we did, we would not have been prepared to divert to any other field. We had not updated our weather and had no idea what the present or forecast conditions were.

It just goes to show you that just because something looks and smells good doesn't always mean it will be good.

15

Lt. Godfrey is an F-14A(Plus) pilot with VF-103.



Lt. Dave Piontek

“CENTER, We Can’t Maintain Altitude!”

By LCdr. David Kriegel

The bright, sunlit skies became increasingly dark and ominous. We were entering the forecast line of rainshowers stretching across our cross-country route. As con-

ditions deteriorated, it became a struggle to remain in the air. Ten minutes before, a squadron friend and his student had encountered this same storm further north.

They had crashed and were killed.

Here’s how it all began. A large group of instructors and students congregated in Flight Planning, discussing the relative merits of their cross-country destinations, which had been approved. The instructors talked about friends they would see and places they would revisit. The students helped each other as they filed, hoping to avoid errors and an unneeded “below average” grade this close to pipeline selection. The mood was rushed but jovial.

After I checked my student’s route, we made a visit to metro. There were a lot of other folks in line, and as we waited our turn, I explained how an experienced pilot not only listens to the weather brief but also examines all available information about the weather.

“You can’t be too careful,” I said. Standing at the back of a long line

16



of fellow pilots who were hurrying the overburdened forecaster, I spotted a large red area to the west of our route on the chart. It was an Aviation Severe Weather Watch (WW). I cautioned my student about the real danger of a WW and told him why he should avoid them. I reviewed the strong danger warning on WWs in OPNAVINST 3710.7: "Except for operational necessity...pilots shall not file into or through areas that the National Weather Service has issued a WW..."

Our forecast showed an hour of actual IFR in stratus clouds and rain showers to the east of the WW. The WW would be 50 miles west of our route.

"No sweat," I said. "You just finished your instrument syllabus. This will be great IFR training."

We all manned our aircraft, anticipating a rush at the hold-short. Thirty-minute delays for flight

clearance were common and it was always first-come-first-served, at the hold short.

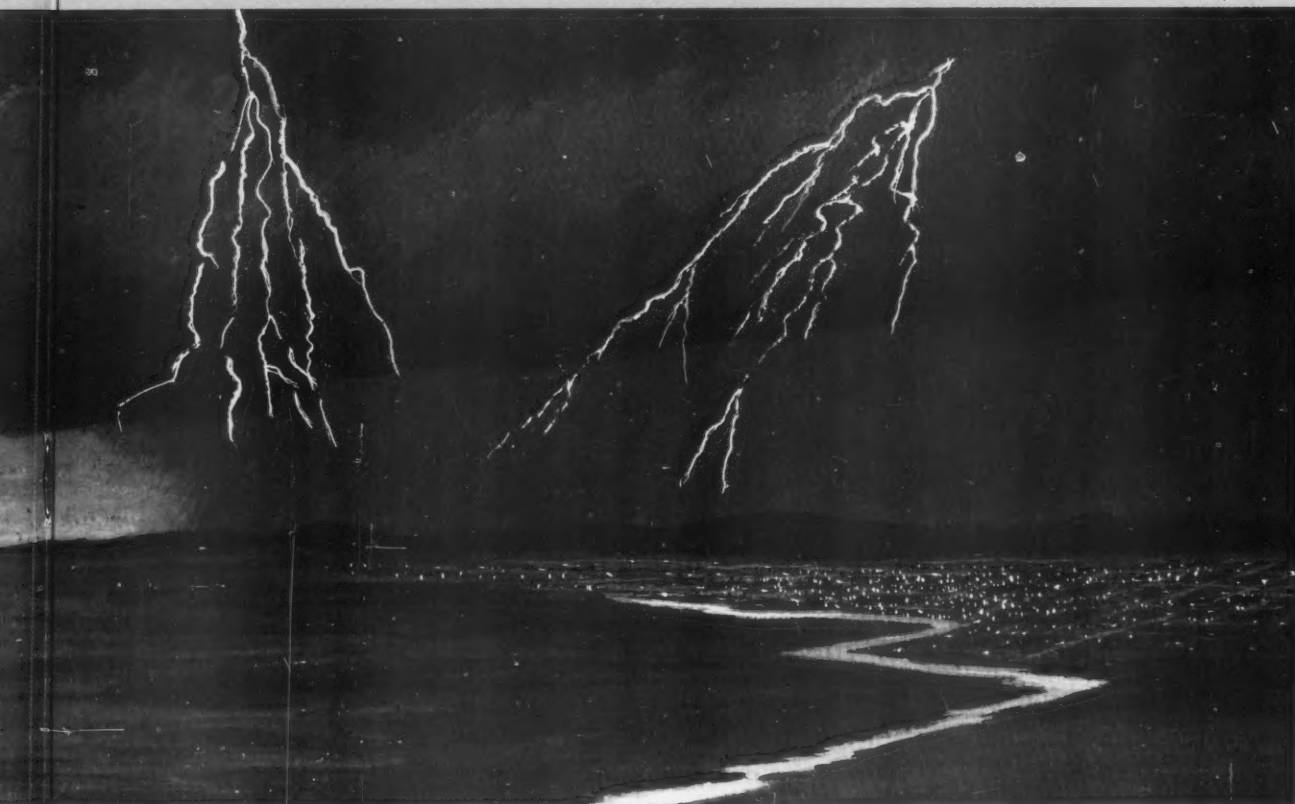
We had a delay when I had to down our T-34. I was somewhat annoyed, watching my buddies taxi out. After a half hour, we had another plane and we joined the line of more than 20 aircraft waiting for takeoff. We eventually launched an hour later than planned, with only six minutes to spare before our weather brief expired.

We headed north, climbing to FL 200. The stratus slowly enveloped us and we shifted to IFR scans. My student did well, following radials and making position reports. The rain got heavier. The sky darkened. Water started pouring into the cockpit through the unpressurized canopy seals. It was certainly more than the forecast stratus and rain showers.

I was concerned that my radio

and electrical system would short out from the incoming water. I quickly covered the radios with charts and my flight gloves. The rain was so heavy that I could barely see the prop only a few feet in front of me. My anxiety increased when the interior lights failed momentarily. At the time, procedures called for you to bail out after a total electrical failure.

A lightning bolt flashed in front of the plane, followed by a loud boom. My student was very quiet. Enough was enough. I knew I was in a thunderstorm, and I wanted out, now. I requested and received a descent from Center and a divert to a nearby military airfield. As we passed through 12,000 feet, we encountered severe turbulence and more heavy rain. The plane started going down on its own. It was hard to maintain a constant attitude, let alone any semblance of level flight. The VSI read 4,000



fpm, down, as I added full power and set a climb AOA. Navy pilots don't get scared but I was real anxious as we kept descending, IFR. Hanging onto the stick with a death grip, I called Center.

"We can't maintain altitude. Requesting lower."

With 1,000 pilot hours, I was still more worried about busting an assigned altitude rather than being in a thunderstorm.

I asked for vectors to any clear weather, reported the severe turbulence and continued to descend through my assigned altitude. Before Center could respond, a familiar voice came over Guard, using my squadron's call sign.

"Mayday! Mayday! I'm bailing out!"

18 The storm spit us out into marginal VFR skies at 2,000 feet AGL, below the billowing bases of the blackest clouds I had ever seen. I asked Center to vector me to where my friends had bailed out, so I could help search. Center told me that a state patrol helicopter was already on the scene.

We landed at a nearby AFB. Our SDO was grateful to hear from us. Unfortunately, my friend and his student had been killed. Witnesses reported seeing their T-34 dive through a 2,000-foot cloud base during the storm, pull up rapidly and barely miss the ground. However, the plane did a wingover at 1,000 feet, paused, then dove into a swamp, burying itself up to the tail.

The mishap board found that the severe weather of the WW had moved east, into our flight path, more quickly than forecast. Our late takeoff also helped put us right in the storm's path. Center knew about the weather but didn't announce it on the UHF, as required; they gave a warning on VHF only.

I hadn't monitored the local VOR stations, nor did I have a VHF radio. My friend had tried to climb over the storm, while I had descended. Remember the rule about thunderstorms? Go around, over, under, but never through the top third of the storm.

From the evidence, the board speculated that the crew had encountered severe turbulence and heavy icing. The board believed that the static air ports had iced over, giving the pilots false airspeed and attitude references, which made them believe they had to bail out.

The instructor and student unstrapped, but for some reason didn't jump out. Perhaps the false airspeed showed them approaching Vne when, in fact, they had stalled. The board also thought the crew had blacked out during the abrupt pull-up above the ground. Without a hand on the stick, the trainer crashed.

I have become very cautious around severe weather and try to pass along my planning techniques to everyone. When planning a flight, I always check the en-route weather before I begin planning and filing my route. When weather forecasts SIGMETS or worse, I ask for advice in flight to avoid the worst weather. If the weather is bad, I may plan my flight time to fly before the weather develops, or I might delay slightly

until it improves.

After takeoff, I use available facilities to update my weather information. I call military metro offices and flight service stations. If the weather has gotten worse than forecast, I may select an alternate route to my destination. If the weather around my destination has gone below minimums, I can plan when to ask for an IFR divert and prepare for it.

I monitor the VHF radio, if one is available, while talking on the UHF. Center should call SIGMETS (Severe Weather) developing on Center frequencies. Monitoring the VOR can also give you a heads-up for severe weather.

If I have to enter bad weather, I prepare the cockpit and crew in advance. We secure loose objects, coordinate crew duties and discuss what we may experience. Preparation relieves anxieties. We make plans to counter instrument failures, extremely severe weather and other emergencies.

The most important advice I can give is to avoid bad weather when you can. Delay your mission or change your route. I have never needed to adjust mission times by more than one hour. Proper planning has let me make easy flights around any weather I will encounter. I ask questions from Center and Metro stations before my situation deteriorates to where all I can do is aviate with no time to navigate or communicate.

Remember ATC radar. Controllers will try to keep pilots 10 miles from known storm activity and 20 miles from severe weather. Remember that ATC weather radar is limited; it can't identify cloud bases or tops. Lastly, if the weather is too bad, turn around. This maneuver has saved many aviators over the years.

LCdr. Krieger is a pilot with VAQ-33.

***Remember the
rule about thunder-
storms? Go
around, over, un-
der, but never
through the top
third of the storm.***



Didn't they know... we were in the fog?

By Ens. Kieran S. Twomey

It had already been a trying day. Two-and-a-half hours of instruction in the stupendous SH-60B at the OLF had done little to hone my aviation skills. It was just one of those days when nothing went right.

We finished our required items and departed. Turning north for our home field, we saw the all-too-typical fog bank ahead of us. ATIS at both locations called for VFR, yet here we were, orbiting in deteriorating conditions. We knew that at any moment we'd be in the goo. I called approach and got the perennial friendly guy who was only too happy to vector us back to the safety of our base.

He asked if we minded if his trainee took us in. We, too, were anxious to be cooperative so we agreed. The controller guaranteed that he would closely monitor the situation.

"Come left to 270," a tentative, somewhat apprehensive, voice peeped over the radio. I rolled left but the tranquility of my turn was interrupted.

"Navy 01, disregard last and come right, say again right, to 090."

I rolled back to the right and acknowledged the call while exchanging furtive glances with my instructor.

"Climb and maintain 3,000—uhhh-h, 2,500 feet, Navy 01," said the tentative voice.

The other voice added, "Come right 110."

By this time we were firmly engulfed by the fog. Visibility was maybe one-quarter mile, but, hey, we were in the hands of the controllers, right?

"Navy 01, come left heading 300, maintain 2,500," said the first voice. She sounded like she was getting the hang of it.

"Negative, 01. Maintain last assigned heading of 110."

Geez, I was getting a little concerned. We were in the middle of a fog bank, rocking and rolling like we were putting on an airshow. At least the senior controller was on top of things. I looked at the HAC who seemed composed and unconcerned. I guess I was worrying for nothing.

"Navy 01, come left 290, maintain 2,500." I delayed just long enough to ensure that there would be no correction, and rolled left while acknowledging the call. We rolled wings level and the crew breathed a collective sigh of relief knowing that we were on our final heading and would soon be turned over to the final controller.

I looked up from my instrument scan for a second to check the weather. That's when I saw it! I jammed the cyclic to the right and watched as another helo passed less than 200 yards to our left.

"Where did he come from?" my instructor said as he seized the controls. "Did you get a side number?"

Yeah, right. I hadn't even noticed what *kind* of helicopter it was. I verified that I still had the controls and pressed my transmit trigger.

"Control, be advised that we just had another aircraft pass by real close on our port side."

"Ah, we don't have any...oh, yeah, there it is." The tentative voice sounded surprised.

"Are you IFR at this time, 01?" asked the calm voice. The HAC and I looked at each other. Of course we were IFR.

Couldn't they see that by looking out their window?

We sometimes forget that controllers aren't where we are. I guess they thought we were VFR and that's why the rookie was controlling us. We presumed that they both knew we were IFR and dealt with us accordingly. Because of the lack of communication, we almost had two flaming holes.

Ens. Twomey is an SH-60B pilot with HSL-45.



PH2 Dave Loveall



TALES FROM A MIXMASTER

By Lt. Pat Rabin

I never thought I'd be so glad to be staring at sagebrush and cow manure. As I sat in the cockpit of my SH-2F with firm ground under my wheels, I considered just how close I had come to buying the ranch instead of landing on it.

We were returning from a cross-country weekend at Desert Mountain AFB. Since we had left NAS West Coast the day before, we spent the night at MCAS Southwest and waited for a cold front to go through the area.

The weather brief at the MCAS said that the front was well clear of our route. As we approached the coast we could expect scattered clouds with maximum tops at 6,500 feet. The air was cold but clear over the desert with a freezing level of

4,000 feet. We would encounter warmer air after passing over the mountains an hour into our 90-minute flight. There was no icing in the forecast.

We took off in good spirits, patting ourselves on the back for waiting out the rain and dust storms that were far away over the Texas plains. They were now someone else's problem. Our controller assigned us 8,000 feet and vectored us onto a westbound airway.

Halfway through the flight, we saw scattered low clouds in the distance. As we flew on, the low clouds began forming a layer. Our VFR sectional showed that the highest peaks in the area were 4,500 feet, just below the layer. We were well above any visible moisture but we turned on our anti-icing gear long before we reached the clouds, just in case.

Fifteen minutes later, we flew over another layer at 7,000 feet. There was one stray cloud at our altitude but beyond that we saw nothing but blue sky at 8,000 feet.

After we passed that one cloud, things got interesting. Other clouds appeared in a matter of minutes. It was not as though the clouds were forming before our eyes, but they certainly weren't there before. I was at the controls, dodging between clouds, and calling Center for a vector to clearer air. My HAC read the OAT—10 degrees C. Center was not responding. The weather was closing in around us. We had no choice and we entered the clouds.

The HAC called for a climb to get above the layer. I pulled power and trimmed to 70 knots, but something didn't feel right. The instruments showed nose down and a minimal climb rate even though I was approaching NATOPS torque limits. Trimming the nose back served to only bleed off airspeed to 50 knots. I was convinced I was misreading the gauges and I told the HAC I had vertigo.

We swapped control but he trimmed nose back and told Center he was climbing to 9,000 feet. Thankfully, the controller replied and granted the climb but said that he could not see any clouds in the area. We climbed quickly but our relief was only temporary. In the same instant, the helo began shaking, the Automatic Stabilization Equipment (ASE) kicked off, my gyro began tumbling and the senso reported that his radar was out.

The HAC's gyro seemed OK and he called for ASE. I was holding the switch on but it wouldn't engage. I knew that the ASE and my gyro were related electrically but there was no time to troubleshoot. The HAC's gauges told me there were bigger problems at hand. We were in a 50-degree AOB with a 2,000-fpm descent. With a healthy dose of vertigo myself, I tried to help the HAC through his own disorientation. We concentrated on basics—level the wings, center the ball and control our climb or descent.

I pictured us falling out of the sky, nose high.

He leveled off and I saw the airspeed bleed down to 35 knots. I pictured us falling out of the sky, nose high. We were shaking so violently that it was hard to even read the gauges. It seemed obvious that we were encountering blade stall but why was it continuing even though we were dangerously slow?

I told the HAC to apply forward cyclic and prepared to take the controls. He tried pushing the stick forward but it was already at the forward stop.

The HAC trimmed nose back, lessening our descent rate and somehow decreasing the jarring vibra-

tions. It was suddenly clear that our pitot static system had iced up, making our airspeed gauge useless. We established a 1,000-fpm descent, and the HAC called center to tell them we would be going below the clouds to get clear of them.

"Negative," center replied, "I can't let you go below 7,000 feet."

Circumstances limited our options, however. Our service ceiling is 10,000 feet and we had gone as high as 9,000 with disastrous results. Although we didn't know how low the layer was, we knew our only hope was to break out before flying into a 4,500-foot peak.

At 6,500 feet, our senso reported seeing ground well below us. We broke out at 6,000. Our ASE was still off and the aircraft was shaking like a mixmaster, but we were under control and alive. Now, we had to find a place to land. Fields were scarce in the mountains and powerlines were everywhere. We saw chunks of ice fly off, reminding us to keep our eyes out until we were safe on deck. We soon found a level field, and the local cattle kindly scattered to let us land.

We found ice on the rotor head which froze the blade track-actuators in place. That explained why we couldn't get rid of the vibrations. The senso's radar antenna had frozen as well. We lost our ASE and my gyro when the vibrations shook the fuze loose.

Perhaps the most striking part of our ordeal was the speed at which the ice formed and accumulated. We were in the clouds for less than a minute, with our anti-icing gear on for 20 minutes before we entered them.

We've all seen the picture of the AV-8 that flew through a hailstorm; it came back looking like it had been riddled with bullets. A calm, cold cloud will knock you out of the sky, too. ◀

Lt. Rabin is a pilot with HSL-33.

Suddenly, I noticed that the crewchief had pulled out the 20-man raft and placed it at the personnel door. When I looked out of the cockpit, all I saw was white.

Capt. Richard Mullen, USMC



By Capt. Daniel G. Purcell, USMC

22 We had been flying in the mountains around Bardufoss, Norway for the past 10 days supporting a NATO exercise involving U.S. Marines, British Royal Marines and Norwegian infantry troops. Some of our crews had experienced how quickly the weather can change north of the Arctic Circle.

A few days before, a senior HAC and I had nearly gone IFR in a snowstorm with an external load swinging from our helo. Fortunately, we maintained ground reference long enough to reach our destination, drop off the load and return. The flying was excellent for our bunch of East Coast H-53 pilots. Snow, mountains, rugged terrain, and lots of chances to gain tactical proficiency.

Flying a CH-53E in snow is hazardous enough without man-made hazards like power lines. A Super Stallion's rotor wash is dangerous, particularly in an arctic environment where blowing snow causes instant whiteout. The violent down-wash also has a super-cooling effect on already sub-zero tempera-

tures and causes an additional hazard to people nearby.

Our safety briefs included flight in this environment, field survival and the effect of wind over the terrain. We emphasized power lines as well. We'd already lost a few aircraft to wire strikes. Most of the mishaps killed someone.

Our mission this day was to fly a section of Super Stallions from Bardufoss south to Vaerness via Bodo. After we landed at Bodo, we'd decide whether to go on based on conditions at the time. The CO made it clear that there was no urgency to make Vaerness in one day. The ODO painted a grim pic-

White, Whiter, Whiteout!

ture as he gave us our zero-dark-thirty brief. Not to worry. Snow was always in the forecast this time of year. Besides, it looked "clear and seven" outside. We'd check before we filed.

Both copilots preflighted the aircraft while the HACs filed and got a final weather brief. Again, the forecast was grim: possible heavy snow moving southwest to northeast. We would be

flying right into it. We decided to launch, fly south, and if we ran into weather in the first hour-and-a-half, we'd return to Bardufoss. After two hours, we'd be committed and would have to land and wait out any weather we ran into.

The first 90 minutes were OK. However, shortly after that, we entered light snow that gradually intensified, forcing us to descend from our briefed 500-foot AGL altitude to 200 feet AGL. Our route took us over mountains and into fjords that led out to the sea. Then we followed the coastline south.

By the time the weather began deteriorating, we were in a fjord with

rapidly rising terrain on both sides. Both aircraft had slowed to 100 knots due to the limited visibility. The snow was steady and visibility was 1.0 to 1.5 miles, although it didn't seem to be getting worse.

I was an extra copilot scheduled to fly the second leg. So far, I had been "comfortably" enjoying the scenery from the jump-seat. Suddenly, I noticed that the crewchief had pulled out the 20-man raft and placed it at the personnel door. When I looked out of the cockpit, all I saw was white. Both aircraft had gone "inadvertent IFR" in a snowstorm at 200 feet.

I could see the lead helo; we were one to one-and-a-half rotors away in tight parade formation. Our HAC in the left seat had the controls and was talking to the lead. Our copilot had been following the navigation and was fortunately well-oriented.

He maintained ground reference and said he could see the coast to our right. The standard, briefed way to break up in inadvertent IMC called for turning away from the lead for 170 degrees with the lead turning opposite for 180 degrees. We couldn't do that, however, because of the fjord's cliffs on both sides.

We decided to make a left 180 and fly out of it. Climbing would put us in an area of more severe icing. Even if we could climb above the storm, we would not be under positive radar control and it was not a comforting thought that we might have to give ourselves an IFR let-down over water.

As we turned, our copilot saw that ice was building on the sponsons. At this point, he began losing sight of the shoreline and I told him I would turn on the three anti-ice systems for the engines while he scanned outside the aircraft and backed up HAC on the controls. Shortly afterward, he lost all visual reference to the ground.

Suddenly, our windscreen was

filled with birds; we'd flown right into the middle of a flock of seagulls. Amazing as it seems, we didn't hit any of them. Two-thirds of the way through the turn, the copilot saw the ground through his chin bubble. At this point, the lead aircraft asked for a positive steer from us. Our copilot quickly responded with a magnetic heading which he felt would keep them clear of obstacles such as the large mountain on our right.

The lead continued turning, then rolled out and began climbing. "What the heck is he doing?" I said. At the same time, the copilot called a positive rate of descent and for an increase in power. Minutes later, we were clear of the storm and dead center in the middle of the fjord. Our copilot reoriented the flight and suggested an alternate route via an adjacent fjord. The weather 10 miles away in the next fjord was VFR.

The rest of the flight to Bodo went fine but we were very careful to avoid any suspected snowshowers. We decided to RON at Bodo and make the second leg the next day.

Playing Monday morning quarterback is always easier than making the right decisions at the time. Here is what I think happened on that flight. Both crews were well-briefed and we had thoroughly covered every area, including weather, divers, en route emergencies and inadvertent IFR.

We had checked the weather once more before filing and get-home-itis was not a factor. We had all agreed that bad weather in the first 1.5 hours would make us return home.

Both aircraft were in excellent shape and our crew coordination was good throughout the flight, especially when we entered IFR conditions. The non-flying pilots were helpful, too.

When I perceived that the lead aircraft was climbing, I was wrong; our copilot simultaneously called our rate of descent while asking for power. Per-

haps our pilot at the controls was suffering from vertigo because he also thought the lead was climbing.

We deviated from our briefed procedures for inadvertent IFR, basing our calculated decision on the rising terrain on our right side. The crews' experience level was a positive factor. Both HACs were respected for their technical and tactical abilities. The only possible negative factor that I can think of was our failure to turn around before we entered whiteout conditions.

Afterward, we succeeded in finding a far more suitable route only 10-15 miles away. We also could have landed and waited out the storm. Although this was an option which we had discussed in the brief, it was not a good one. Finding a place to land two CH-53Es in rugged terrain would have been difficult, and getting the word back to base that we were safe on deck would have been even harder.

We might have been lulled into a false sense of security by the weather. 23 The first 15 minutes of snow wasn't bad. The visibility was adequate to maintain altitude and airspeed, so we pressed on. Later, the decreased visibility caused a reduction in airspeed—from 120 knots to 100 knots—and a descent to 200 feet. At this point, the flight was still workable although the terrain was covered with snow and hard to see.

We proceeded with caution, but the transition from "workable" to whiteout took less than five seconds and caught everyone off guard.

Even though I was not part of the flying crew that day, I learned an important lesson about weather and flying, especially in such a dynamic area of operation as northern Norway. Perhaps we should place more emphasis on weather phenomena during briefings. I know at least five pilots who will pay more attention to cold-weather hazards.

Capt. Purcell is a CH-53E pilot with HMM-162.



Left to right (standing): Ltjg. Steven H. Bucknam, Lt. Vincent C. Bowthers, Ltjg. Mark C. Workman, left to right (kneeling): Lt. Kevin L. Clark, AT3 David R. Somers

Lt. Vincent C. Bowthers
Lt. Kevin L. Clark
Ltjg. Steven H. Bucknam
Ltjg. Mark C. Workman
AT3 David R. Somers
VAW-122

24

Steeljaw 601 was climbing through FL200 when the crew heard a loud bang from the starboard engine. The E-2C immediately shuddered, pitched right wing down, and yawed to the right. The master caution and right-generator lights came on.

Lt. Bowthers (PIC) began recovery procedures. He checked his instruments but saw no secondary or fire lights. He asked Ltjg. Workman (copilot) and the men in the tube – Lt. Clark (CICO), Ltjg. Bucknam (ACO) and AT3 Somers (RO) – to check the starboard nacelle. They reported a massive oil leak streaming down the nacelle and smoke coming from the engine. The pilot and copilot began the NATOPS shutdown checklist, secured the starboard engine using the condition lever, and declared an emergency as

they turned toward NAS Norfolk.

Shortly after engine shutdown, Ltjg. Bucknam and Ltjg. Workman reported flames and smoke coming from the starboard engine. Lt. Bowthers and Ltjg. Workman went through the NATOPS engine-fire-in-flight procedures although no fire light was lit, with no effect. Ltjg. Bucknam reported that the smoke and flames were still visible.

While discussing whether to land or bail out, the crew saw that the fire subsided, and they decided to land at Norfolk using the short-field gear. Lt. Bowthers made a short-field arrestment and secured the port engine. The crew abandoned the aircraft while crash crews extinguished the fire.

Inspection revealed that the engine turbine section had massive damage to the blade and casing.

Lately, Bravo Zulu submissions to *Approach* magazine have not always followed established guidelines. The magazine cannot use the submissions until the requirements have been met.

While the narrative can be written by the squadron public affairs officer or the safety officer, it must be chopped through the CO, then the CAG, Wing or MAG before being sent to *Approach*. In the case of an HSL det or an air station, the ship's CO or the station CO can substitute for the wing requirement.

Both "chops" should accompany the narrative, along with a 5-x-7 photograph of the crew. The photo can be black and white.

If you have further questions, you can call Peter Mersky, the acting editor, at Autovon 564-7558.

Ltjg. Mark Howell
Ltjg. Tom Keane
AMH1 Carlos Debien
AE3 John Byrd
NAS Patuxent River

While on a training flight from Patuxent to Myrtle Beach AFB, AE3 Byrd saw a pool of oil on the floor at the cargo door of his SH-3. The flight crew found no indication of a leak but decided to make a precautionary landing at the nearest airfield. AMH1 Debien (crew chief) confirmed the leak, noting oil streaming down the fuselage side at

BRAVO ZULU



Left to right: AMH1 Carlos Debien, Ltjg. Mark Howell, AE3 John Byrd, Ltjg. Tom Keane

an alarming rate.

Ltjg. Keane (PAC) began a descent from 4,000 feet and turned toward Wakefield Airport, three miles away. Ltjg. Howell (HAC) called for landing checks. As the aircraft decelerated on approach, the crew reported that the cabin windows were obscured by oil on both sides of the helo.

Oil pressure decreased in the main gear box to just below red line, and the oil-pressure light lit. Ltjg. Keane (copilot) made a run-on landing to minimize power changes and taxied clear of the runway. To avoid a post-shutdown fire, the crewmen suggested completing disengagement without using the oil-soaked rotor brake.

A postflight check revealed that a helicoil on the starboard, forward side of the main-gear box manifold had pulled out. The aircraft had lost eight of 12.6 gallons of oil.

Lt. Rob Spratt
Ltjg. Chuck Chase
VA-42

Lt. Spratt (IP) and Ltjg. Chase (Replacement BN) were inbound to their target during a night bombing hop when they had a flight-hydraulic failure. The aircrew aborted the run, and Lt. Spratt began to climb as he turned his A-6 back toward NAS Oceana. Ltjg. Chase declared an emergency and pulled out his PCL.

The pilot and BN discussed their options. Approach asked if they would be able to take an arrestment on the off-duty runway. Ltjg. Chase replied they would.

During the approach, the tower delayed switching runway lights, and the Intruder crew did not see the runway until they were on a two-mile final, well right of course.

With reduced control, Lt. Spratt initiated a wave-off. At the same time, the aircrew saw the master caution light flash with indications that the combined hydraulic system had also failed. Now, they only had the backup hydraulic system to control the A-6.

The A-6 backup hydraulic system

was designed to only allow a damaged aircraft to leave a combat area. The aircraft was descending, with no lateral stick control and extremely limited pitch authority. Lt. Spratt told the controllers that he and Ltjg. Chase would probably have to eject.

However, with Ltjg. Chase monitoring the backup hydraulic pump and the VSI, Lt. Spratt was able to level off at 400 feet and continue upwind. He was able to achieve and maintain 800-1,000 feet, and, using the rudder, he put the plane into a 7-10-degree bank. He told the controllers he would set up for a trap on the duty runway, runway 23.

The A-6 made a successful arrested landing, the first for a fleet Intruder crew under these circumstances.

Maintenance personnel found a break in the flight snubber line, which caused the flight system to fail. Another unrelated break in a backup hydraulic line siphoned the fluid from the combined hydraulic system, causing its failure. VA-42 has initiated NATOPS and MIM changes for this situation.

25



Left to right: Ltjg. Chuck Chase, Lt. Rob Spratt



Capt. David B. Bonner, USMC
VMA-231

26

Capt. Bonner was part of a section of AV-8B Harriers tasked with a 2 v 2 DACT mission. After several engagements, the Harriers rendezvoused with a KC-130 tanker. Capt. Bonner positioned himself on the port hose while his wingman took the starboard position.

After taking 3,000 pounds, Capt. Bonner disengaged. During the disengagement, however, the hose separated from the tanker at the reel connection. The probe never separated from the basket, causing 83 feet of hose to remain attached to Capt. Bonner's aircraft. The hose hung over the Harrier's port wing and wrapped under the port horizontal stabilator. Both AV-8Bs descended to clear the tanker and turned toward Pohang, Korea, which was an authorized divert.

During the descent, the hose dislodged from beneath the port stab and started oscillating wildly. Capt. Bonner's wingman told him to climb

to make it easier for him to eject if the hose got tangled in the empennage again. Capt. Bonner was able to maintain control and continued the approach to Pohang.

Turns in either direction were equally difficult. In a right turn, the hose wrapped around the rudder, deflecting it. A left turn would make the hose stream out to the side of the aircraft. Capt. Bonner decided to make a 50-knot, rolling, vertical landing; he planned to use reaction controls to stabilize his AV-8B if the aerodynamic controls lost their effectiveness.

Capt. Bonner had to make a dogleg approach to Pohang to avoid overflying a high-rise housing complex at the approach end of the runway. While as he decelerated through 100 knots, the hose rendered his aileron control less effective. He went to full power and set his nozzles at 60 degrees to regain control. After regaining the use of his ailerons, Capt. Bonner made a safe landing at 135 knots. The Harrier was not damaged.



Lt. Brad A. Berlin
VT-2

Lt. Berlin and his student departed NAS Whiting Field for a scheduled familiarization flight. After arriving in the local flying area, the student made an approach-turn stall at 7,700 feet MSL. He recovered from the maneuver with maximum allowable power in a climb. Suddenly, the T-34C's engine made a loud, banging noise, with smoke and flames coming from the exhaust stacks.

Lt. Berlin reduced power, cleaned up the aircraft and lowered the nose to regain optimum gliding airspeed. He increased power slightly; the noise, smoke and flames continued.

BRAVO ZULU

With N1 showing 35 percent, ITT decreasing below 400 degrees C., and fuel flow at 50 pounds per hour, Lt. Berlin engaged the emergency power lever (EPL), which resulted in more banging from the engine with smoke and flames. He disconnected the EPL.

Lt. Berlin properly diagnosed a catastrophic engine failure and set up for a forced landing. At 5,500 feet, and three miles SE of OLF Barin, he shut down the engine and made a dead-engine glide to high key. He intercepted high key at 2,800 feet and made an uneventful deadstick landing.

Lt. Paul Moore
Lt. Frank Bijak
VA-155

Lt. Moore (pilot) and Lt. Bijak (BN) were making high-speed, low-altitude attacks in the Boardman target complex when their A-6E had an apparent total hydraulic failure. The Intruder began an uncontrolled roll to the right, which the pilot was able to counter. Lt. Moore had minimal control authority and only the backup-hydraulic control system worked.

The crew saw that both flight-hydraulic indicators showed zero psi, and the combined indicators were cycling between 0-1000 psi. The master caution and backup-hydraulic lights were on as well. After a few seconds, the combined-hydraulic indicators returned to 3,000 psi, and the crew began a climbing turn toward Yakima Airport.

During the climbout, the aircraft began making uncommanded rolls to the right, with both combined-hydraulic gauges cycling between 0 and 3,000 PSI. The plane seemed to stabilize as its combined-hydraulic system returned. The crew continued climbing to 18,000 feet.

Another aircraft from the squadron

joined on them to inspect their A-6. Lt. Moore and Lt. Bijak decided to head for nearby Grant County Airport which had longer runways and would also help them avoid populated areas. They went through their NATOPS emergency procedures and made an uneventful landing, using 8,000 feet of runway.

The horizontal-stabilizer actuator

had failed, and the crew had only minutes before they would have lost control of the aircraft.

Once again we had a close call with an hydraulic failure and avoided a mishap due to the crew's quick reaction. The bottom line is if you have an hydraulic failure, get the plane on deck quickly. — LCdr. A.M. Keith, A-6 Analyst for the Naval Safety Center. ◀



From left to right: Lt. Frank Bijak, Lt. Paul Moore

Another Night Adventure

28

How could a routine, night FCLP hop at our home field turn into one of those nights in a barrel? Quite easily. It was time for that check in the block before getting underway in WESTPAC. The plan called for a hot switch, hot pump, launch into the GCA box for a quick instrument refresher. Then we would slide over into the ol' FCLP pattern to satisfy the bounce requirement for a refresher CQ the following week.

By LCdr. Rick Berg

We had briefed and slid with the flight schedule into the late evening as seasonal fog hung off the coastline just a few miles to the west. After the hot switch, we couldn't refuel since the pits were closed because of new, shorter hours to reduce station operating costs. No problem, 6.8 on the fuel was enough for a few laps around the pattern to make the LSOs happy.

I held short, waiting for the tower's evaluation of the new weather which had gone down below the field's VFR minimums. Our minds drifted away, organizing the week-before-cruise-get-everything-done game plan. Twenty minutes slipped by when the tower announced, "Weather now 1,000 scattered, variable, broken. Visibility three miles. Tomcats holding short, want to try it?" Sure, why not! I thought. It still looks clear to the west and it would really help ops if we got this flight out. Besides, if it's not workable, we can just full-stop and try again tomorrow night.

After takeoff and a turn downwind, the aircraft attitude

display (VDI) went blank and retired for the evening. Well, that's what standby gyros are for.

At 600 feet AGL, abeam, paddles lost sight of us while our "ground gouges" vanished. Great, I thought, they always preach an instrument turn off the abeam but I'm used to cheating a little, especially without the VDI. The hairs on the back of my neck went up at the 135 as I leveled my wings and climbed out of the scud layer to take it around.

"Tower, 206 requests a full stop on the next pass. The bounce is not workable."

"Roger, 206, you're cleared number one on the right."

OK, next pass, we'll just stay below this stuff and keep a tally on the field. We enjoyed a good case of vertigo off the abeam, trying to remain VMC, scanning the instruments and the faint stream of cars going down the expressway right below us. Then, we went IMC at the 90.

That water-tower-at-the-90 gouge that always saved our pattern was now our adversary. The weather

backdoored us from the east (which never happens at this field), clobbering the approach end. Maybe we launched into a sucker hole. After leveling the wings and climbing out of the scud again, we asked for vectors to a GCA full stop.

A couple of laps in the "delta" went by as we calculated our time remaining before we had to divert. I wished we had started with a normal bounce load.

"206, looks like it will be a while," said the tower. "Approach is saturated."

"Tower, we've got 15 minutes before we have to divert over the hill."

We wondered how approach could be saturated when our GCA box was empty. It turned out that the controllers had scaled down to a skeleton crew in the late evening — again, reducing operating costs.

We didn't know that the horde of bingo divers inbound off the CV and commercial airline traffic were getting higher priority. OK, decision time.

"Tower, if we can't get vectors for a GCA now, we request a divert."

"206, roger. Approach still can't take you now. Stand by for your divert routing."

Ever get that helpless, boxed-in feeling as your options slip away? We did more laps in the delta and still no clearance. Are those guys home? The inevitable bingo fuel (padded a bit) arrived. Frustrated, we left NAS Homefield on a bingo profile east to the desert and earned a night in the Splinterville BOQ.

Lcdr. Dave Parsons

I wished the VDI would reset and I wondered why operating on the beach had to be that hard. I realized that I had not adjusted from the CV operating environment, which had become so routine during the previous six months during workups. At sea, your rep in air ops faithfully lobbies for your spot in the CCA pattern or buys you a little more flying time with a tanker. After getting aboard in poor weather, at night, with a pitching deck, it's easy to play down the hazards of shore operations.

We called approach on our climb and were greeted unexpectedly with, "206, turn right, heading 150 degrees, and descend to 3,000 for a hook to final." One more hard look at our fuel determined that we had just enough for one approach. I was uneasy about not keeping a little in the hip pocket and possibly letting our desire to land at home influence our decision. We accepted the vector for a GCA pickup and shot the approach.

Fortunately, we didn't get a student controller under instruction. We didn't flame out and we broke out just above mins. Back on deck, we reviewed our decision points and the circumstances that almost boxed us in.

We should have realized the limitations and differences between CV and shore operations. As opportunities to fly dwindle with the occasional squeezes on OPTAR, we needed to temper the desire to fly and get the "X" with deviations from standard operating procedures and good judgment. We should have resisted mental time-sharing with personal business in the cockpit and focused on the flight 100 percent. Life is simpler on the boat. ◀

LCdr. Berg is a second-tour F-14 pilot with VF-21.



Painted Into a Corner:

A Nugget's Weather Lesson

By Ltjg. Lang Sias



Lcdr. Art LaGare

30

My lead and I briefed that we would take off from NAS Southeast for practice intercepts in the warning area before we marshaled overhead for CQ on USS *Boat* 30 miles off the coast. At first, the hop went as planned. We entered the warning area and conducted our intercept training. During this time, we monitored approach and heard reports of rain showers heading toward the field from the west. The ship's weather remained VFR and the two divert fields east of our NAS were also VFR.

We held overhead the ship

At 300 feet AGL, I was barely able to make out the "rabbit" strobe light. The GCA controller said the runway had standing water with poor braking action.

approach/march 1991

waiting for our signal "Charlie," until Marshal told us to go back to homeplate and expect another overhead later in the day. Approach told us that the field was VFR, but not for very long. Since several aircraft were trying to get back home at the same time and we had plenty of gas, we agreed to hold south for spacing.

While we orbited, we heard that the field would soon be "hard IFR," with rain showers. Our first divert, however, 10 nm east, was still clear. My lead immediately told Approach that we wanted to go to this divert and we received a

vector and a clearance to descend.

We penetrated the clouds in parade formation. I lost sight of my lead when the visibility went to zero, took a cut away and told my lead. I received a separate vector and continued the approach.

As we headed inbound, Approach broadcast that the weather was deteriorating rapidly. Initially, they reported the field was IFR, so lead and I accepted vectors for separate GCAs. Just as I entered downwind, Approach said conditions were "hard IFR." Rainshowers were in the vicinity, but there were no reports of standing water.

Since lead was already on final, I decided to continue my approach. I had plenty of gas and our second divert, 15 miles to the northeast, was still VFR.

During the GCA, I kept asking for reports of runway braking action. At 300 feet AGL, I was barely able to make out the "rabbit" strobe lights. The GCA controller said the runway had standing water with poor braking action. Lead had broken out and touched down, but because of a 90-degree crosswind with gusts between 40 to 45 knots, he selected burner and left for the other divert. I followed his example, cleaned up and headed for the second divert.

I was still in and out of rainshowers as I headed east, but I began to relax knowing that a visual approach would be no problem. About 15 miles south of

the second divert, I broke out of the clouds and suddenly realized that my troubles were not over. The edge of the storm extended north for as far as I could see. It was moving rapidly east and was only a mile or two from the field.

I needed to beat the storm and I went to military power while circling southeast. I asked for a downwind entry to the southwest runway. I spotted my lead who was on the base leg of his approach. I paralleled the field, heading northeast as I dirtied up. The tower cleared me to land behind my lead. They also warned me about a significant wind shear about two miles off the coast on runway centerline. I could see small clouds out over the water marking the leading edge of the storm.

The windshear worried me and I kept my knots up through base leg and the turn onto final. As I went beneath the clouds, the plane reacted as though we were flying in heavy jet wash and rolled into a 70-degree bank. I lit the burners and flew out of the disturbance but I realized I had grossly overshot the centerline. I tried to correct but my lead, who was now on deck watching me, told me to take it around and try again.

Tower cleared me for a right turn to downwind. I wanted to stay clear of the windshear and I tried to fly a tight pattern. As I reached the 90, though, I could see that the 40-knot wind from the west had blown me so far over that I was

going to overshoot again, this time by at least a mile!

My lead doublechecked my gas and he told me to go around again, to the left this time to fly into the crosswind through the 90. He also advised me to take a trap and to touch down on the right side of centerline. I got it right the third time. With full, left rudder at touchdown and half flaps, the hook caught and I rolled out left but still on the runway.

Thirty seconds later, the deluge began. The entire area was engulfed in waterspouts and two tornados were seen within five miles of the field.

Weather, and the weatherman, can paint you into a corner in a hurry. If we had arrived at the second divert a few minutes later, our only option would have been a low-fuel trap on the boat—still 30 miles off the coast. Also, Approach was very slow to send aircraft to the divert fields. They knew about the weather, but did not appreciate its intensity or the speed at which the storm was moving. At first report of zero-zero at homeplate, we should have cancelled our IFR clearance and gone right to the first divert instead of holding just long enough to allow the field to go WOXOFF.

By trying to get on deck in a hurry at the second divert, I compounded my weather problems. I should have set up for a comfortable straight-in and done it right the first time.

Ltjg. Sias is an F/A-18 pilot with VFA-83.

Wingin' in the Rain

By LCdr. G.R. Sawyer

All we had to do was find the Orange Task Group, pump a load of (simulated) Harpoons and HARMS into her, then return to Mother for an OK 3-wire, followed by a night slider. The target ship was more than 500 miles away and tanker support was a must. I was the flight leader and my directive from CAG was simple: Make it happen! Sounded good to me.

It took about 20 minutes to sort out the tanker from the other strikers, but once we finished tanking, we proceeded on our long-range night WASEX. Needless to say, the Case III EMCON launch didn't help expedite matters. As we joined, my wingman (who had correctly joined on the first green twirly he saw) was just getting into the KA-6D's basket. As he completed tanking and cleared to the right, we were cleared in.

Almost simultaneous with getting stabilized behind the tanker, our three-plane formation entered a heavy rain shower. The basket began moving up and down. We were all bouncing around a bit. As the rain intensified, the basket made several Houdini acts, disappearing before our eyes. Around the 15th stab, we somehow managed to get in sync just long enough to neutralize the basket's Romulan cloaking device. With one last lunge, we were in. As the green fuel flow-lights illuminated, I heard a sigh of relief in my headset.

Unfortunately, the happy feeling was short-lived. Suddenly, the rain engulfed us in waves. Lookout became increasingly difficult in the reduced visibility. Formation flying was even harder.

Then it happened: the tanker disappeared! One moment it was there, then it wasn't. We had just entered one of the most intense rain showers I had ever seen. Focusing our concentration on the basket at the end of the probe became an exercise in staring. For what seemed like an eternity we gulped down oxygen and anxiously waited for the tanker to reappear.

From out of nowhere, the KA-6's white tail light glowed, along with the plane's horizontal stab, directly over the top of our canopy. The stab was less than five feet away...and moving rapidly closer.

"Back out!" I screamed. Fortunately, my pilot had also realized the danger.

"I can't see a thing. I'm getting out," he called as he pulled the throttles to idle and put out the boards. The tanker pilot was also feeling uncomfortable. He'd had enough of his plane's up and down motions. As though on cue, the previously reset radar altimeter began to wail and the tanker made an emergency breakaway by accelerating straight ahead. To coin a phrase, it was a very close call. Each of these actions probably averted a midair and provided a much-needed margin of safety.

During the time we had lost sight of the tanker, we had unknowingly induced a positive closure rate. At that point, the amount of gas we received didn't matter. Whatever the amount, it would have to do. Fortunately, it was enough. By now we were about 80 miles from Mother. The tanker got a steer home and detached.

The A-6 has a great radar for "seeing" weather, but at the moment it merely confirmed my fear. We were in the heart of a wide band of heavy moisture, the kind of radar-absorbing weather that may contain embedded thunderstorms. So much for the "marginal VMC with possible rainshowers in the vicinity" forecast. Unable to pick our way through on radar, we continued toward the target, slowly climbing to FL260. As I glanced at our wingman, all I could see was the hazy glow of his left wingtip, anti-smash and probe lights. Thank goodness for the little things.

For the next 200 miles, the wingman flew the best IFR formation of his career. I saw some of the most terrifyingly beautiful sights in the universe. From the bright, blue St. Elmo's fireball surrounding the tip of the refueling probe, to the sky-blue sheet that enveloped our canopy. Sparks danced along the leading edges and tops of the wings and the peanut-sized raindrops had a purplish glow as they splattered incessantly against the front windscreen. And everywhere, there were erratic streaks of lightning and roars of thunder. What a breathtaking display. All I could think about was how much I hated the four-year, flight-equipment swim.

When we were about 130 miles from our target, we finally emerged from the goo. What a relief to see the stars. After launching our simulated weapons at the designated time and place, we returned as singles to avoid having to fly form again through that mess. Although we met the same band of weather, we were better prepared to circumnavigate the truly heavy concentrations. Even better, at FL 250 and 198 miles from home, the TACAN locked up, corresponding within four miles to the strike attack vectors we were receiving.

EMCON was over, the mission was a success, and we did get that OK 3-wire. That cheese slider was the best one I've ever had.

LCdr. Sawyer is a BN with VA-75.

Under the Weather and the Hop Still Went to Hail!

By Lt. Paul Bunge



The hop couldn't have been better. It was one of my last flights in the RAG, a day terrain-clearance low-level. My instructor pilot and I thoroughly briefed the new digital Search Radar Terrain Clearance (SRTC) system and set it to shoot 800 feet of clearance on the route. The weather was typical for that time of year: low, scattered and broken clouds with the standard, isolated thunderstorms.

We were two-thirds through the low-level portion of the flight and everything had gone as briefed, including the weather. As we pressed on toward the target, we could see a few rain clouds. One seemed to be right on our course. The clouds didn't look too bad, but my radar couldn't see through them. At six miles, I still couldn't see through the clouds so I called for a cut to the right to remain clear of the rain.

Just as we began to turn, I heard several sharp bangs. It took a second for me to realize what they were and I called for a hard right as the pilot wrapped it up. I ducked out of reflex as two dozen hailstones struck the A-6. I heard a couple of choice fleet

expletives from the left seat as I looked up to see several cracks radiating from the bottom of the pilot's windscreen. We immediately slowed down, began a climb and evaluated the situation.

We had two major questions. First, would the windscreen implode? Second, what damage had the hailstones done to the airframe and engines? The Intruder was still flying, and a quick scan of the instruments showed that the engines were fine. A closer look at the canopy as we lowered our seats revealed that only the outer layer of the windscreen was cracked. As we climbed VFR through 10,000 feet,

we decided to dump our cabin pressurization and fly home at max conserve to relieve stress on the windscreen.

We turned north and called Northwest Center for clearance back at minimum vectoring altitude to keep the cabin altitude comfortably low. On the way, we checked the aircraft for any signs of damage. We noticed several small dents on the leading edges of the wings. We followed our PCL for damaged aircraft and eventually recovered safely.

Our postflight showed minor dents on all leading edges. Every external light was broken. There was blendable FOD damage to the sixth stage of both engines, and, of course, the cracked pilot's windscreen.

When I discussed our flight with the ready room cowboys they questioned our decision to dump cabin pressure. They said that the pressure inside the canopy would have helped support the pressure from outside. That made sense; maybe we had made the wrong decision.

I asked a few of the real rocket scientists, and I decided we had made the right move. Dumping cabin pressure was probably the best call since normal fluctuations of the pressurization system would have stressed the windscreen more than the steady pressure of the airstream.

Now, what about the weather? Thunderstorms were in the forecast, but the line extended farther south than predicted. Hail was never included in the brief. Perhaps the most interesting fact is that the hail hit us in clear, VMC air. The cell from which the hail came didn't look like a "normal" thundercloud; it looked more like a rain squall.

We never saw any lightning near the cell and we never came closer than five miles to the buildup. We never encountered rain. The hail was apparently spit out of the top of and away from the cell.

Lt. Bunge is a BN with VA-95.

LIBRARY OF MICHIGAN

APR 11 1991

U.S. DOCUMENT
RECEIVED DEPOSITORY

100 Million Volts That's en-Lightning!

Poster idea contributed by ISSN Kevin D. Reynolds.



